

REMARKS

Allowed Claims

Applicant acknowledges the indication of allowable subject matter in claims 9-12, 26-29, and 38. However, for reasons discussed below, Applicant submits that the remaining claims are also allowable.

Claim Amendments

Applicant amends claim 33 to correct a minor typographical error.

Section 102 rejection of claim 1

The Examiner has cited four passages in support of the proposition that *Boppart*¹ anticipates the claims.² Of those passages, the only one that appears to have any relevance to the claims is that which describes FIG. 2.³

As best understood, the Examiner considers FIG. 2 of *Boppart* to read on claim 1 as follows:

an elongated housing rotatably supported on a flexible catheter sheath, said housing supporting	No specific structure identified or suggested
first and second reflective surfaces, said first reflective surface and second reflective surfaces being longitudinally spaced apart from one another;	Each surface of the reference mirror 18 is a reflective surface.
a delivery fiber having a distal end adjacent to said first reflective surface; and	Fiber extending from splitter 14 to upper surface of mirror 18.
a collection fiber having a distal end adjacent to said second reflective surface.	Fiber extending from lower surface of mirror 18 to combiner 34.

¹ *Boppart* et al., US Patent No. 6,485,413.

² [col. 2, lines 40-49; col. 2, lines 60-65; col. 4, lines 38-65; and col. 7, lines 10-42].

³ [col. 7, lines 10-42].

Boppart fails to anticipate claim 1 because the surfaces of the reference mirror are not “longitudinally spaced apart from one another” as required by claim 1.

The Examiner apparently agrees that the two surfaces are not “longitudinally spaced apart from one another” as required by claim 1. However, he then states that the two surfaces are nevertheless “functionally equivalent to two independent surfaces.”

Claim 1 does *not* recite two independent surfaces. It is unclear therefore why it makes any difference whether or not the two surfaces are “functionally equivalent to two independent surfaces.” In either case, they are not “longitudinally spaced apart from one another” as required by claim 1.

Boppart also fails to anticipate claim 1 because the reference mirror **18** is not supported by “an elongated housing rotatably supported on a flexible catheter sheath.”

The Examiner has not stated specifically what structure in *Boppart* corresponds to the claimed “elongated housing.” Nor does there appear to be such a structure described by any of the four passages cited by the Examiner. Certainly, no “elongated housing” appears in FIG. 2.

To the extent a housing might be deemed inherent, there is no indication that such a housing would necessarily support the mirror **18**. The mirror **18** is a reference mirror. As such, it makes little sense to place it inside anything remotely like “an elongated housing rotatably supported on a flexible catheter sheath.”

Boppart also fails to anticipate claim 1 because the structures that allegedly correspond to the reflective surfaces are not even part of a catheter tip apparatus.

In FIG. 2, the only structure that could conceivably be a catheter tip apparatus is that labeled “probe module.” It is quite plain that the reference mirror **18** is outside the probe module.

Claims 2-8 and 13-19 all depend on claim 1 and therefore include the limitations of claim 1. Accordingly, those claims are allowable for at least the reasons set forth above in connection with claim 1.

Section 102 rejection of claims 2 and 3

The Examiner asserts that these claims are anticipated because *Boppart* teaches, in FIG. 8B, that the reflective surface may be a rotating prism that redirects the beam.

It is unclear what relevance this may have to claims 2 and 3 since no such limitation is recited in those claims.

Claim 2 recites a housing that includes a frame member having a slot arranged therein for receipt and alignment of the reflective surfaces. Claim 3 recites first and second reflective surfaces that each include a beam redirecting member. Neither claim recites a rotating prism.

Section 102 rejection of independent claim 20

As best understood, the Examiner considers *Boppart* to read on claim 20 in the following way:

A catheter tip apparatus comprising:	Probe module
an elongated housing having a longitudinal axis of rotation, said housing having a first reflective surface disposed thereon;	One surface of reference mirror 18 is a first reflective surface.
a second reflective surface disposed on said housing distal to said first reflective surface and in axial alignment therewith;	The other surface of the reference mirror 18 is a second reflective surface.
a delivery fiber in optical communication with said first reflective surface; and	The fiber extending from the splitter 14 to the mirror 18.
a collection fiber in optical communication with said second reflective surface,	The fiber extending from the mirror 18 to the combiner 34.
said delivery fiber being in communication	The light source 10 and the receiver

with a controlled analytical-light-generating source and said collection fiber being in communication with a light-collection analysis device.	processor 28
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None of the cited passages from *Boppart* disclose “an elongated housing having a longitudinal axis of rotation.” For this reason alone, *Boppart* cannot anticipate claim 20.

In addition, there is no indication that the mirror **18**, whose two surfaces the Examiner has identified with both the first and second reflective surfaces, is inside any housing having a longitudinal axis of rotation. In fact, in FIG. 2, it is quite plain that the mirror lies *outside* any catheter tip apparatus.

Nor is there any implication that the mirror **187** would be so disposed. The mirror **18** is identified as a reference mirror. It is unclear why a reference mirror would be anything but stationary.

Claim 20 also requires that the second reflective surface be “disposed on said housing *distal to* said first reflective surface and in axial alignment therewith.”

The Examiner has already observed that the surfaces of the mirror **18** are not longitudinally separated from one another.⁴ The words “distal to” make no sense without some longitudinal separation. Hence, it is unclear how the second reflective surface of the mirror **18** can be considered “distal to” the first reflective surface.

Claims 21-24, 25, and 30-32 all depend on claim 20 and therefore include the limitations of claim 20. Accordingly, those claims are allowable for at least the reasons set forth above in connection with claim 20.

⁴ *Office Action*, page 2.

Section 102 rejection of dependent claim 25

Claim 25 recites the additional limitation that the first reflective surface be “disposed radially within and spaced from the perimeter of said housing.”

The Examiner has not identified any housing. To the extent that a housing might be deemed inherent, there is no reason to expect that any portion of the mirror 18 would necessarily be “disposed radially within and spaced from the perimeter of” such a housing to permit “spreading of a light beam” from the first reflective surface.

Section 102 rejection of independent claim 33

The arguments set forth above in connection with claims 1 and 20 are applicable to claim 33.

Claim 33 also recites the additional limitation that the elongated housing be “an optically-transparent sheath-enclosed elongated housing.” The Examiner has not identified any such disclosure in *Boppart*. To the extent that a housing might be deemed inherent, there is no reason to expect that such a housing would necessarily be “an optically-transparent sheath-enclosed elongated housing.”

Claim 33 also recites the additional limitation of “a generally curvilinear cover arranged to mate over a distal portion of” the housing. In addition, this cover is required to have “at least one opening on an annular surface thereof.”

None of the four passages cited in connection with this rejection comes even close to disclosing a cover with all the details recited in claim 33.

Claims 34-37 all depend on claim 33 and therefore include the limitations of claim 33. Accordingly, those claims are allowable for at least the reasons set forth above in connection with claim 33.

Section 102 rejection of independent claim 39

The arguments made in connection with the section 102 rejections of claim 1 also apply to claim 39. In particular, *Boppart* fails to disclose an elongated housing, much less one having both a longitudinal axis of rotation and an optically transparent sheath.

In the preceding independent claims, the Examiner has identified the two surfaces of the mirror 18 as being the two reflective surfaces in the claim. However, claim 39 recites *three* reflectors: a delivery reflector and two collection reflectors. The cited text from *Boppart* fails to identify a third reflector.

Claim 40 depends on claim 39 and therefore include the limitations of claim 39. Accordingly, claim 40 is allowable for at least the reasons set forth above in connection with claim 39.

Section 102 rejection of dependent claim 40

Claim 40 requires that the *two* collection reflectors be disposed to collect light emitted from a common light delivery source, which would presumably be the light source 10 in FIG. 2.

Since *Boppart* discloses only one structure, namely the lower surface of the mirror 18, that can even plausibly be called a “collection reflector,” this claim cannot possibly be anticipated.

Section 102 rejection of independent claim 41

Boppart fails to anticipate claim 41 because it lacks any disclosure of disposing a beam redirector at an angle that depends on the numerical apertures of any fibers.

Claim 41 recites the step of disposing beam redirectors at an angle with respect to a longitudinal axis. This angle is proportional to the numerical apertures of energy fibers.

The Examiner appears to consider the beam redirectors of claim 41 to correspond to the two surfaces of the reference mirror 18 in FIG. 2 of *Boppart*. Presumably, the first and second

energy fibers of claim 41 would be the two fibers in communication with those two surfaces of the reference mirror 18.

As best understood, the reference mirror 18 is stationary. There is no indication that the reference mirror is in any way adjusted to form an angle, with some axis, that somehow depends on the numerical aperture of the fibers. *Boppart* discusses numerical aperture only of objective lenses, not fibers.

Claims 42-43 and 45-48 all depend on claim 41 and therefore include the limitations of claim 41. Accordingly, those claims are allowable for at least the reasons set forth above in connection with claim 41.

Section 102 rejection of claim 44

Claim 44 was cancelled in the Rule 1.114 submission filed on April 12, 2005 with the request for continued examination.

Section 103 rejections

All claims rejected under section 103 are dependent on the independent claims discussed above. As noted above, the primary reference, *Boppart*, fails to disclose at least one of the claim limitations. In no case does the secondary reference, *Winston*, cure the deficiencies in *Boppart*'s disclosure. Accordingly, the combination of *Boppart* and *Winston* would still fail to disclose each claim limitation.

Compliance with Rule 1.104

Applicant notes that *Boppart* is a complex reference that describes numerous different inventions spread out over thirty-three sheets of drawings and over twenty pages of specification.

It is apparent from close review of the office action that in numerous instances, the Examiner has not designated, in *Boppart*, structures corresponding to certain claim elements. In some cases, such as in claims 2-3, the Examiner has designated structures that clearly have no bearing on the claim limitations.

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In view of the foregoing, Applicant draws attention to Rule 1.104(c)(2), which requires that

"[w]hen a reference is complex or shows or describes inventions other than that claimed by the application, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified."

Applicant submits that the office action is not in compliance with the foregoing rule and therefore requests that any subsequent office action remain non-final.

Summary

Now pending in this application are claims 1-43 and 44-48. Of these, claims 1, 20, 33, 39, and 41 are independent. Claims 9-12, 26-29, and 38 are allowable.

No additional fees are believed to be due in connection with the filing of this response. However, to the extent fees are due, or if a refund is forthcoming, please adjust our deposit account 06-1050, referencing attorney docket "12258-032001."

Respectfully submitted,

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